

Consumer Behavior in Relation to the Decision to Buy Green Products: an Investigation on Iranian Consumers

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Abstract

This article investigates the Iranian consumer behavior about green products. Their environmental beliefs and their decision making process in purchasing green/eco-friendly products. In this paper it has been attempted to collect data by using a questionnaire including 34 questions. The respondents were 272 civilians who lived in Tehran and at least had diplomas. In our research we used data correlation analysis, and for supplemental analysis t-student analysis and one-way ANOVA were used. Results show that a positive correlation exists between environmental opinions and green purchasing behavior, between previous experiences of consumers and perceived quality of green goods, as well as, between perceived quality of green products and green purchasing behavior. But there is no significant correlation between verbal advertising and perceived quality of green products. Thus, the conclusion is that (according to a positive opinion about environment among Iranian consumers and its positive correlation with green purchasing behavior) if they can ensure the quality of green products, they will decide to buy these products. studying of the Iranian consumers' behavior toward green products would be useful to politicians and companies who are willing to participate in green products industry, to place effective policies and strategies to protect the environment, and also persuade investors to bring more financial support. Moreover, the result will provide more evidence about the differences between consumers behavior in different countries around the eco-friendly products.

Keywords: Consumer behavior; Word of mouth (WOM); Perceived quality; Green purchasing behavior; Green products.

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1. Introduction

Green products industry, according to an estimate in 2006 was a \$ 200 billion industry [5]. Global warming and speeches in defense of green living have attracted the interest in environmental issues in the market with regard to maintenance and preservation of the environment. In 1992, a research on American consumers showed that most of them were concerned about the environment but the same study showed that despite these concerns, they were reluctant to buy or pay more for eco-friendly products [5].

The issue was referred to as the gap between belief and practice in the use of green products. In 2002 a report by the Institute of Roper ASW was released in The United States, and showed that consumer concerns about the environment were decreased. But surprisingly American consumers wanted to buy green products and pay more for these goods. These differences and sometimes conflicting results put manufacturers of such goods in an unknown and challenging situation. Studies on the consumption of green products in other countries showed that the perceived quality of goods was a significant barrier to their choosing. For example Ottman in his research in 1998 showed that 41 percent of consumers didn't buy green products because of lower perceived quality of these goods [11].

So, now that Iran has a small growing market for eco-friendly goods and the government is putting pressure on the companies and consumers for production and consumption of these goods, it is important to recognize the factors influencing consumers' decision-making process and how they react to green products. The following article is seeking to answer these questions: Is there a gap between consumer beliefs about environment and their general environmental behavior or green purchasing behavior in Iran like other countries? What's effective on perceived quality of green goods? Is there a relation between perceived quality of green products and green purchasing behavior or not?

2. Literature Review

Consumer Beliefs and Behaviors. A survey in 2004 showed that customer beliefs and values should be considered at the time of testing the factors that affect the decision-making [6]. The values are permanent beliefs that determine a given behavior to be known as acceptable or proper, like being concerned with the environment. But researches on the consumption of green goods have indicated a positive relation between beliefs with behaviors and the environment [1].

Also, it has represented the weak relation between them [10]. Thus, although pro-environmental values can lead to eco-friendly behavior, there is the possibility of a weak relation between environmental opinions of consumers and their environmental behavior. According to this article and researches done in this area, it is decided to put the consumer behavior in relation to green purchasing behavior into two categories of general environmental behavior and green purchasing behavior.

3. Problem Description

It is argued that although for some reasons the consumers may not show their environmental reasons to buy goods at the time of shopping, it is likely that general environmental behaviors such as separation of waste for recycling has less risk that threatens the consumer. No gap exists between consumer environmental opinions

and environmental behaviors. So the first and second Hypothesis are constructed as follows:

Hypothesis 1: There is a positive relation between consumer opinions about environment and general environmental behavior. Hypothesis 2: There is a positive relation between consumer opinions about environment and green purchasing behavior.

Verbal Advertising and Perceived Quality of Green Products. Word of mouth (WOM) advertising is the most effective on purchasing food and household products [12]. Continuous research has shown the importance of verbal advertising in shaping attitudes regarding customer decision-making process and also reducing risks in consumer decision-making [16].

Verbal advertising is defined by Merton as follows: "verbal advertising is a process of personal influence in which interpersonal communication between a sender and a receiver can change the receiver's behavior or attitude" [14].

Pickett-Baker and Ozaki [12] in their study reached the conclusion that people who were unresponsive to the environment often cited verbal advertising. Hart and his colleagues in a study stated that customers who had had a bad experience in their shopping retold this issue at least to 11 people. Meanwhile, those who had had a good experience retold it only to 6 people [2]. Fisk and his colleagues also had similar observations.

One of the explanations which is expressed based on their proposed theory, is the effect of positive and negative events. They have argued that under certain conditions it can be stated that the negative events provoke much stronger response than positive events [13]. In other words, negative verbal advertising can be more destructive.

According to this study hypothesis 3 is made to consider the effect of verbal advertising on perceived quality green products.

Hypothesis 3: There is a positive relation between perceived quality of green products and verbal advertising (WOM).

Previous Experience of Consumers and Perceived Quality of Green Products. Another influential factor on perceived quality of green goods is the consumer's previous experience of these goods. To identify the factors that shape environmental values, one way is studying previous experiences of consumer's lives that are forming beliefs and values of active environmentalists [7].

Pickett Baker and Ozaki [12] mentioned in their research that people who worry about environmental issues rely on their own previous shopping experiences. On the other hand function of green products has often been assessed lower than other goods [11].

For example Ottman [11] showed that 41 percent of consumers didn't buy green products because of lower perceived quality of these goods. In fact, consumers had a negative attitude toward green products because green products quality was lower than similar but non-green competing products. However, few researchers looked at this topic from consumer previous experiences viewpoint [8].

Therefore, hypothesis 4 is made to test the positive relation between consumers' previous experience and perceived quality of green products.

Hypothesis 4: There is a positive relation between perceived quality of green goods and consumer previous experience.

Perceived Quality and Green Purchasing Behavior. Considering that the most important factor is the lack of consumer intention to use green products, according to researches done outside of Iran, perceived quality of these goods was lower than non-green goods. So we decided to evaluate this issue. Pickett Baker and Ozaki [12] in their findings about the quality of green products stated that most of the consumers were unwilling to compromise on the quality of their goods.

In fact, consumers don't want to leave the quality in favor of being green. Green products must be at least of the same quality as non-green goods [12]. However given that the performance of green products is often lower than other goods [11] and the first green goods haven't had a good performance, these bad previous experiences may be accompanied by verbal advertising and have a negative effect on consumers. Also, they affect their intention to use green goods. According to these studies Hypothesis 5 is constructed.

Hypothesis 5: There is a positive relation between perceived quality of green goods and green purchasing behavior.

4. Methodology

Statistical Population and Sample. To select the sample, in this study the researcher have talked to consumers in Tehran that have at least a diploma. The reason of this selection is that more educated people are more familiar with this topic. Because green goods are new in Iran and it needs the power to read the labels on the goods which usually encompasses environmental information about the product. According to these descriptions, a sample of 272 individuals are randomly selected from among the consumers in Tehran and asked to respond to the questionnaire. It should be noted that the sample size is calculated by Cochrane formula.

Questionnaire and Data Analysis Methods. Questionnaire used in this study is a three-part questionnaire. The first part of the questionnaire included 12 questions on general environmental opinions about environment that is designed based on NEP questions. NEP questions were designed in 1978 by Danalp and Vanlyre [3] and since then they have been used as an unofficial standard in the assessment of general environmental opinions. Casey and Scott in 2006, in a new study, tested the NEP predicting range and found that this range is positively related to environmental behaviors such as recycling, consumer behaviors, and protective behaviors [2]. The second part of the questionnaire included 5 questions about the perceived quality of green products, verbal advertising, and consumer previous experience on using green goods. This part of the questionnaire is extracted from an article by Picket-Baker & Ozaki in 2008.

The third part of the questionnaire encompasses questions about environmental behavior that from 14 questions, 6 questions review the green purchasing behavior and 8 questions review the general environmental behavior. This section of the questionnaire is designed based on RSW questions that divided consumers according to green consumption [12]. Range of the responses that consumers are faced in the questionnaire included the Likert four-point range:

Strongly agreed = 3, agreed = 2, opposed = 1, and totally opposed = 0.

Finally it is noteworthy that the questionnaire also included three demographic questions i.e. age, sex, and education of the respondents.

Validity of Questionnaire. As noted the questionnaire is composed of three parts: the first part consists of the standard questions from NEP, the second part of the questionnaire is extracted from an article by Pickett-Baker & Ozaki [12], and the third part is designed according to the standard questions of RSW. It has been tried to design and translate the questionnaire according to the original texts and then after consulting with supervisors and advisors. Only minor changes are done to some sentences to make the questionnaire's text easy, clear, and understandable.

Questionnaire's Reliability. In this study 6 variables have been studied i.e. general environmental opinions, green purchasing behavior, general environmental behavior, perceived quality of green goods, consumer prior experience, and verbal advertising. To calculate the reliability Cronbach's alpha method is used that alpha coefficients are obtained using the SPSS software and for each variable are shown in Table 1.

Table 1. Cronach's alpha coefficients of variables

source	α	scale	Variable
NEP	0/837	4 point	General opinions
RSW	0/693	4 point	Green purchasing behavior
RSW	0/748	4 point	General environmental behavior
Pickett-baker&Ozaki	0/712	4 point	Perceived quality
Pickett-baker&Ozaki	0/724	4 point	Previous experience
Pickett-baker&Ozaki	0/753	4 point	Verbal advertising (WOM)

5. Results and Discussion

Data Analysis Method: Demographic Description of Samples. To measure the demographic status of sample three questions were raised. Results showed that among 272 respondents, 50.4% were male, approximately 49.6% were women. Age of the largest age group was between 20-30 years old, approximately 39.7% of the sample. About half of the respondents (47.1%) got bachelor's degrees. A full result of the demographic situation of sample is shown in Table 2.

Table 2. Demographic Characteristics of Sample

percentage	levels	variable	percentage	Levels	variable
			49/6	Woman	Gender
39/7	30-20	Age groups	50/4	Man	
35/7	40-30		2/9	High school diploma	Degree
10/7	50-40		14/3	College diploma	
8/1	50 & above		47/1	Bachelor's	
			27/9	Master's	
			1/8	PhD	

Before studying hypotheses it is necessary to consider mean, standard deviation, and correlation between variables of research (Table 3). Among the variables, general opinions have got the highest score and perceived quality has got the lowest score. Correlation analysis has shown that general environmental opinions have a positive relation with general environmental and green purchasing behavior ($r = 0.279$, $p < 0.05$).

Verbal advertising has a positive but non-significant relation with perceived quality of green products ($r = 0.020$, $p > 0.05$). Perceived quality of green products has a positive relation with consumer previous experience ($r = 0.185$, $p < 0.05$) and ultimately perceived quality of green products has a positive relation with green purchasing behavior ($r = 0.105$, $p < 0$). Also, the relation among other variables of research are examined that the complete results are presented in Table 3.

Table 3. Mean, Standard Deviation and Correlation among Variables

6	5	4	3	2	1	S.D	mean	Variables
0/190 ^A	0/078	0/076	0/150 ^A	0/279 ^A	-	0/29066	1/8768	1. General opinions
0/323 ^A	0/072	0/068	0/588 ^A	-	-	0/64695	1/5512	2. General behavior
0/366 ^A	0/134 ^B	0/105 ^B	-	-	-	0/59778	1/6856	3. Green purchasing behavior
0/185 ^B	0/020	-	-	-	-	0/88750	0/9849	4. Perceived Quality
0/327 ^B	-	-	-	-	-	0/64090	1/8633	5. Verbal advertising
-	-	-	-	-	-	0/82912	1/5392	6. Previous experience

A: $p \leq 0/0^1$, B: $p \leq 0/0^2$

According to the results of correlation analysis that is presented in Table 3, we will examine the research hypotheses. Correlation coefficient calculated between consumer opinions about environment and general environmental behavior according to Table 3 is equal to 0.279 that is with 95% level of confidence and shows a significant and positive correlation between these two variables. According to this hypothesis, a base is accepted for the positive relation between consumer opinions about environment and general environmental behavior.

According to data in Table 3 it is found that there is a significant correlation between consumer opinions about environment and green purchasing behavior that its correlation coefficient is equal to 0.150. Thus, the positive relation between consumer opinions about environment and green purchasing behavior, which is raised in the second hypothesis, is accepted with 95% level of confidence.

Considering hypothesis 3 that seeks to show the positive relation between perceived quality of green goods and verbal advertising (WOM), according to data presented in Table 3. Although the correlation between these two variables is equal to 0.020, because the Sig. value obtained is equal to 0.372 which is larger than 0.05 this hypothesis is not accepted. So there is no significant positive correlation between perceived quality of green products and verbal advertising (WOM).

Hypothesis 4 examines the positive relation between perceived quality of green products and consumer previous experience. According to Table 3, there is a significant positive correlation between perceived quality of green products and consumer previous experience with 95% level of confidence. The correlation is equal to 0.185.

Considering hypothesis 5, according to data obtained from Table 3, there is a significant positive relation that is really acceptable between perceived quality of

green products and green purchasing behavior with 95% level of confidence. The correlation coefficient calculated for these two variables is equal to 0.105.

Gender Influence on Environmental Opinions, Green Purchasing Behavior, and General Environmental Behavior. This section examines the differences between men and women in relation to environmental opinions, green purchasing behavior, and general environmental opinions in Iran. To determine the differences between men and women in relation to the above variables, t-test is used for two independent groups and the results are presented in Table 4.

Table 4. Comparison between Men and Women

T- test for average			Equality of	
High and low levels of confidence			variances test	
%95			(Levene)	
High	Low	Sig.	Sig.	
0/022	-0/266	0/097	0/273	Green purchasing behavior
0/194	-0/117	0/625	0/777	General green behavior
0/066	-0/074	0/918	0/586	Environmental opinions

According to Table 4 and the obtained values, assumption of equal variances is accepted for all three variables between two groups of men and women with 95% level of confidence. The test results indicate that there is no difference between men and women in environmental opinions, green purchasing behavior, and general environmental behavior.

Effect of Age on Environmental Opinions, Green Purchasing Behavior, and General Environmental Behavior. In this section, the impact of the age variable is discussed in considering environmental opinions, green purchasing behavior and general environmental behavior in Iran.

Table 5. ANOVA Test results for Comparing Age Groups

Sig.	F	Square mean		
0/065	2/439	0/205	Inter group	Environmental opinions
		0/084	Intra group	
0/398	0/991	0/414	Inter group	General environmental behavior
		0/418	Intra group	
0/295	1/242	0/437	Inter group	Green purchasing behavior
		0/352	Intra group	

As we have seen from Table 5, because the Sig. value is greater than 5% for any environmental group i.e. environmental opinions, general environmental behavior, and green purchasing behavior, we conclude that there is no significant difference between different age groups in these three areas with 95% level of confidence.

6. Conclusions and future works

Table 6 briefly shows the results of testing hypotheses:

Table 6. Results of Testing Hypotheses

Results	Sig.	Statistics	Hypotheses
approval	0/000	0/279	Hypothesis 1.
approval	0/007	0/150	Hypothesis 2.
rejection	0/372	0/020	Hypothesis 3.
approval	0/002	0/185	Hypothesis 4.
approval	0/045	0/105	Hypothesis 5.

Hypothesis 1 considers this issue that there is a positive relation between consumer opinions about environment and general environmental behavior. This hypothesis is confirmed. In other words, positive opinions about environment such as interest in environmental protection will lead to general environmental behaviors such as the separation of waste for easier recycling.

Hypothesis 2 is confirmed and considers the positive relation between consumer opinions and green purchasing behavior. Analysis of results obtained from these two hypotheses is in contrast with results obtained from similar studies outside Iran that most of them showed a gap between positive opinions about environment and environmental behaviors. For example, in 1992, a research on American consumers showed that most of them were concerned about the environment. But the same study showed that despite concerns noted by consumers, in practice, they were reluctant to buy or pay more for eco-friendly goods [5]. In another study in the UK by Pickett-Baker and Ozaki [12] they found that there is a gap between environmental opinions and pro-environmental behaviors among the respondents [12].

Hypothesis 3 examines the positive correlation between perceived quality of green goods and verbal advertising (WOM). As it is clear in Table 3, this hypothesis is rejected. As already described this result is obtained through the research done on verbal advertising that consumers like to recount their negative experiences more than their positive experiences. Also, in a research conducted by Pickett-Baker and Ozaki it is confirmed that consumers rely on verbal advertising in the use of green products. This finding is inconsistent with the results of this research and we don't have this issue in Iran. Considering the positive relation between perceived quality of green goods and consumer previous experience that is raised and confirmed in the forth Hypothesis in comparison with the third hypothesis that is rejected, it can be said that consumers rely on their previous experiences more than previous experience of other consumers which are transferred to them through verbal ads. Because green products are newly emerged in the Iranian market and are unknown (due to lack of widespread consumption of these goods among the majority of people) consumers rely on their own direct experience. Pickett-Baker and Ozaki [12] in their research concluded that people who were concerned about environmental issues relied on their own previous experience to buy green products, but people who were unresponsive to environment often cited verbal advertising.

Finally, according to previous researches it is noted that the perceived quality of green products is the biggest obstacle in purchasing such goods and if the consumers make sure of quality of green goods, they will turn to these goods. In other words, green goods are accepted as lower quality goods in consumer's mind. So, according to the fifth hypothesis it is confirmed there is a positive relation between perceived quality of green goods and green purchasing behavior. If the manufacturers of these goods can raise the quality and convince the consumers to buy, they will turn to these products.

In the supplement the influence of two variables i.e. age and gender is studied on environmental opinions, green purchasing behavior, and general environmental behavior. About gender, as noted in analysis, there is no significant difference between men and women in this area. This result is unlike the result that Lee obtained through his research in 2008. He studied the impact of demographic differences in green purchasing behavior of consumers in Hong Kong. His findings showed that women have higher scores on environmental attitudes, environmental importance, and environmental responsibility than men in Hong Kong [9]. On the other hand, the result obtained from this case agreed with a thesis work by SarviHampa (1386) that in this research also no significant difference was found between men and women in green purchasing.

Previous researches about age have shown that young people are more eager than old people to accept new ideas and innovative practices including pro-environment behaviors. Moreover, researches have shown that most of the pro-environmental individuals are young [9]. But this claim is not accepted in this research, and its supplement. These findings agree with the other results obtained from a research by Pickett- Baker and Ozaki. It is stated in their investigation that, except in few cases, the age factor isn't crucial in environmental behavior.

Research Limitations. Despite all the efforts made, this research was facing limitations like extension of sample results to the society and the unwillingness of people to fill in the questionnaires. On the other hand, lack of understanding and sometimes ignorance of the concepts raised in the questionnaire could cause the respondents misunderstanding. Therefore, the researcher was sometimes forced to attend to explain to respondents to clarify the concepts unfamiliar to them. This might lead to another problem that respondents, due to the presence of the researcher, may evade giving real answers about their behaviors and interests.

Managerial Implications. Unlike researches conducted in other countries, this study showed that there is no gap between consumer opinions about environment, and their behavior toward green consumption. Active organizations in environmental protection can propel the consumers to green consumption by advertising or creating positive perceptions and opinions about environment. In addition, given that the values and beliefs are forming early in the consumer's lives and changing them is difficult in adulthood, we should try to teach children environmental values and beliefs in early childhood.

According to hypotheses 2 and 3 consumers emphasize on the importance of their previous experiences about perceived quality of green products more than verbal ads or word of mouth (WOM). So, because according to previous researches

consumers expect green goods to have the same quality and performance as non-green goods, companies must focus on these aspects and make a good impression on consumers' minds.

According to previous researches, the perceived quality of green goods is the most important factor to consumers of these goods. As it is shown in the fourth hypothesis, if these goods quality become obvious to the consumers, they will be encouraged to use these products.

Suggestions for Future Research. Unlike the findings of this research, similar researches conducted in other countries have shown that there is a gap between environmental opinions and behaviors among consumers. So the difference between these results can be examined deeply. The supplemental analysis has revealed that there is no difference between men and women in environmental behaviors, but in similar researches outside Iran the difference between these two groups have been observed. The researchers can study the reason of this difference.

Finally, because there are two groups of environmental behaviors that are less risky to the consumers, i.e., separation of waste and green purchasing behavior like buying recyclable goods, it is recommended to the researchers to examine these two types of behavior separately in their future research.

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